L11: Entry 1 of 1 File: USPT Oct 26, 2004

DOCUMENT-IDENTIFIER: US 6810310 B1
TITLE: Anti-terrorist aircraft pilot sensor system and method

Detailed Description Text (7):
In an offnormal condition, such as a terrorist attack on the pilot or even a health emergency of the pilot, the pilot can exhibit abnormal physiological parameters and/or the biometric sensor will sense that the biometric parameters are no longer acceptable matches and a discontinuity of the parameters will exist (i.e. the pilot sensor has been detached from the pilot). The discontinuity of the biometric parameters and/or the physiological parameters sensed by the pilot sensor can trigger a signal to be sent to the aircraft central processor unit. The system can place the aircraft on autopilot to prevent manual control of the aircraft by unauthorized users, such as highjackers, and terrorists. By placing the aircraft into autopilot as well as sending out an emergency signal to ground control, the aircraft can remain on a safe flight path. The ground control can activate emergency procedures, monitor the aircraft flight systems and cabin, and provide remote assistance. While the aircraft is on autopilot, any highjacker can be prevented from altering the course of the aircraft and placing the aircraft in harms way. A return to normal parameters can also be an event that allows for deactivation of the autopilot and a return to the manual flight control. For example, a disconnection of the pilot sensor from the communication path can trigger the autopilot and a reconnection of the pilot sensor can allow for return to manual control.

Detailed Description Text (11):
The anti-terrorist aircraft pilot sensor system 500 includes an additional element, an emergency divert element 540 and transceiver 542 coupled to the emergency divert element 540. The emergency divert element 540 is operatively coupled to the aircraft central processor unit 522 and can place the aircraft on a safe flight path away from protected objects 546. The protected objects 546 include a transceiver 548 that emits a divert beacon 550 into the airspace around the protected object 546. The divert beacon 550 is a radio frequency signal at any frequency convenient for emitting signals to aircraft. The divert beacon 550 is similar to a lighthouse beacon that is emitted out into an area in order to warn and divert aircraft away from the protected object 546 in order to prevent collisions with the protected object 546. The protected object 546 can include, but is not limited to, buildings of significance that are perceived as threatened by possible aircraft collision, national treasures, military assets, skyscrapers, ships, geographic or topographical places of interest, such as mountains near flight paths and the like. The divert element 540 is also in operative communication with the ground control 530 and can receive an emergency divert signal 552 from ground control 530 in order to place the aircraft on a safe flight path out of harms way. The divert element 540 can operate independently of the pilot sensor 512, as well as the ground control 530.

Detailed Description Text (12):
Referring to FIG. 6, in operation, the anti-terrorist aircraft pilot sensor system

is in an activated state, block 600. In the event that the aircraft deviates from the normal flight path and approaches a protected object 546, the emergency divert element transceiver 542 receives the divert beacon 550, block 610, being emitted from the transceiver 548, block 612. The emergency divert element 540 sends a signal to the aircraft central processor unit 522, block 614. The aircraft central processor unit 522 can process the signal and perform command and control processing, block 616. The emergency divert element 540 can be programmed with a variety of divert flight paths that are safe flight paths for the aircraft. The divert element 540 can provide optional flight paths to the aircraft central processing unit 522 that divert the aircraft away from the protected object 546 and direct the aircraft onto a safe flight path. The manual control can be deactivated and the aircraft can be placed on autopilot on the divert flight path block 618. The aircraft central processor unit 522 can send an emergency signal 528 to the ground control 530, block 620. In addition, ground control 530 can also send an emergency divert signal 552 to the emergency divert element 540, block 622, as ground control senses a need to divert the aircraft.

Detailed Description Text (13):
In an alternate embodiment, other aircraft can divert the aircraft that is off course or heading toward a protected object. For example, military aircraft patrol the airspace above protected objects or in protected airspace (e.g., near the nations capitol). The military pilot on patrol can identify and detect aircraft that deviate from commercial flight paths, or even take a course toward a protected object. Instead of merely resorting to firing on the aircraft in the attempt to destroy the aircraft before it collides with the protected object, the military pilot can send a signal to the divert element 540. The aircraft emergency divert signal (block 624 at FIG. 6) can be directly sent to the divert element 540 or to the ground control 530 which can then transmit the emergency divert signal to the divert element 540. The divert element can automatically divert the aircraft and place it on a safe flight path. The use of the anti-terrorist aircraft pilot sensor system with the divert element avoids the need to take extreme measures such as destroying the aircraft. This is especially beneficial near heavily populated areas, where even though destroying the aircraft protected the object, falling debris may cause injury, destruction and collateral damage.

Detailed Description Text (14):
The divert beacon 550 can be placed on special aircraft, tall buildings, military bases, ships laden with potentially lethal cargo, such as deadly chemicals, and the like. The divert beacon 550 can have optimum ranges so that the protected objects 546 are safe while minimizing the impacts on commercial flight paths. The emergency divert element 540 can be fully integrated into the anti-terrorist aircraft pilot sensor system 500. The above discussed military aircraft can also utilize the anti-terrorist aircraft pilot sensor system to monitor the conditions aboard the aircraft that deviates from the flight path. Having the onboard information gathered from the pilot sensor, a pilot can make a better informed decision on what actions to take toward the aircraft.

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